

CHAPTER 4: Material Storage and Transportation

Purpose and Applicability of Regulations

The potential to adversely affect human health and the environment is always present when using, storing, and transporting regulated materials. Consequently, numerous regulations have been created to prevent accidents and reduce the risk of exposure to regulated materials. Complying with these regulations will minimize your liability and protect your employees, the community, and the environment. Following is only a summary of requirements. You must refer to the regulations for specific information.



*Note: There are many regulations pertaining to the storage, usage, and transportation of materials. Each regulation targets a specific group of materials that exhibit certain characteristics. Appendix B, which can be found in the back of this book, contains definitions of the various regulated groups of materials found in the material storage, use, and transportation regulations. These defined terms appear throughout this chapter in bold lettering. In some instances, multiple agencies use the same term to describe a regulated group of materials; however, its definition differs. Such terms will be followed by a dash and the acronym of the defining agency or regulation. For example, the Michigan Department of Environmental Quality (DEQ) and the U.S. Department of Transportation (USDOT) have differing definitions for the term “hazardous waste.” Therefore, the DEQ and USDOT definitions of hazardous waste will appear as “**hazardous waste-DEQ**” and “**hazardous waste-USDOT**,” respectively.*

Agencies and Their Laws and Rules

The state, federal, and local agencies that enforce the regulations that apply to the storage, use, or transportation of regulated materials are listed below. Identify the regulations that apply and contact the appropriate agency if you have any material use, storage, or handling questions.

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State Agencies

The following divisions within the Michigan Department of Environmental Quality (DEQ) administer different parts of the Natural Resources and Environmental Protection Act, Public Act 451 of 1994, as amended (Act 451) or other regulations:

The Waste and Hazardous Materials Division (WHMD) regulates:

- Hazardous, liquid industrial, solid, scrap tires, and medical waste (See Chapter 2).
- Some PCB wastes (See Section 2.4.9.f and Section 4.5).
- Underground storage tanks (See Section 4.3.1).

- Aboveground storage tanks and containers holding **flammable and combustible liquids-Act 207** (See Section 4.3.2)
- Liquefied petroleum gases (See Section 4.3.2)
- Compressed natural gases (See Section 4.3.2)
- Radioactive materials and waste (See Section 2.4.9.n)

The Water Bureau regulates:

- Storage and use areas for **oil-DEQ, salt**, and other **polluting materials** under the administrative rules “Spillage of Oil and Polluting Materials” (Part 5 rules) promulgated under Part 31 (Water Resources Protection) of Act 451 (see Sections 4.1 and 6.2.2).
- Outdoor storage and use areas at facilities subject to storm water permits (see Section 6.2.4).

The Air Quality Division regulates:

- Air emissions from storage tanks under Part 55 (Air Pollution Control) of Act 451 and the Federal Clean Air Act. See Section 1.4 for more information about these requirements.

The Michigan Department of Labor and Economic Growth (DLEG) regulates:

- Material storage and use, including good housekeeping practices, pursuant to the Michigan Occupational Safety and Health Act (MIOSHA), Public Act 154 of 1974, as amended (Act 154). Contact the MIOSHA Consultation Education and Training Division at 517-322-1809 for information on [standards](#) such as “Hazard Communication/Employee Right-To-Know” and “Flammable and Combustible Liquids”.
- Requirements for building or remodeling a business under the Michigan Construction Code, Plumbing Code, and other codes including requirements for high-hazard materials storage areas.

The Michigan State Police, Motor Carrier Division:

- Regulates the transportation of hazardous materials.
- Enforces many of the U.S. Department of Transportation’s (USDOT) **hazardous material-USDOT** regulations as adopted by Michigan’s Motor Carrier safety Act.

Federal Agencies

The U.S. Environmental Protection Agency (EPA) regulates:

- **Oil-EPA** storage under the Spill Prevention, Control, and Countermeasure (SPCC) requirements (see Section 6.2.3).
- Title III of the Superfund Amendments and Reauthorization Act (SARA) which requires that hazardous material inventory information be submitted to state and local agencies (see Chapter 5).
- Polychlorinated biphenyls (PCB) storage and use under the Toxic Substances Control Act and the regulations found in Title 40, Part 761 of the Federal Code of Regulations (40 CFR 761).
- The Risk Management Plan (RMP) program that requires a hazard assessment, prevention and emergency response procedures be developed for regulated substances above a threshold quantity at a facility. For more information on the RMP program, see Section 6.2.5.

The USDOT regulates:

- Inter- and intra-state transportation of **hazardous materials-USDOT** under authority of the Federal Hazardous Materials Transportation Act and Title 49 of the Code of Federal Regulations in conjunction with the Michigan State Police.

Local Agencies

- Local ordinances overseen by local authorities. Contact your local building official and fire department for questions concerning the fire code, specific secondary containment requirements, and local reporting requirements. Contact county or city clerk regarding local business licenses.

4.1 Secondary Containment

One way to reduce the damage caused by chemical releases is to control their impact to air, groundwater, surface water, and drains. This can be done by rapid excavating or using items such as [sorbents](#) and devices to block drains. Some regulations require secondary containment structures to control releases, depending on what is being stored. See Appendix 4-A at the end of this chapter for a summary of these regulations. The DEQ's document "[The Guide to Understanding Secondary Containment Requirements in Michigan](#)" provides additional information on calculating and designing secondary containment structures.

Even if you are not required by law to have secondary containment, you are encouraged to use it for all materials that may pose a risk to human health and the environment if released. You can consider purchasing pre-fabricated containment units or fabricated units built to your specifications. Many environmental regulations do not specify how these structures must be built; only that they keep the material from reaching surface water and groundwater or the regulations provide general conditions like the containment must be compatible with, and impervious to, the contained material.

The volume that secondary containment structures must be able to hold varies with the type of substance stored. If the regulations do not specify a greater amount, it is generally acceptable that the containment area be designed to hold, at a minimum, the greater volume of either ten percent of all the container volumes, or 100 percent of the largest container volume, plus any precipitation that may accumulate in the area. Discuss secondary containment requirements about:

- ✓ Liquid polluting materials stored outdoors with the Water Bureau district office. (See Section 6.2.2 for some examples of polluting materials found at food processing facilities.)
- ✓ Hazardous waste with the Waste and Hazardous Materials Division district office. (See Section 2.4.6)
- ✓ Flammable and combustible liquids with the DEQ Storage Tank Unit on any storage that falls within the scope of the Storage and Handling of Flammable and Combustible Liquids (FL/CL) Rules (R 29.4101 - 4504), promulgated under the authority of Act 207. The requirements of these rules supercede local requirements if different than what is required in Act 207 or the FL/CL Rules. (See Section 4.3)
- ✓ Flammable and combustible liquids with DLEG MIOsha at 517-322-1809 when subject to those regulations.

- ✓ Oils storage when have more than 1,320 gallons storage capacity with the US EPA Region 5 (See Section 6.2.3)

Local authorities may also have containment requirements. Jurisdiction varies between communities but may be with the waste water treatment plant, county health department environmental health section, and fire department.

Also check if your insurance company has any additional requirements pertaining to your coverage policy.

If the materials you have on hand are affected by other regulations, follow the more stringent requirements.

Examples of secondary containment structures include:

- ✓ Curbing
- ✓ Dikes, berms, or retaining walls
- ✓ Drip pans
- ✓ Enclosed cabinets with sealed flooring
- ✓ Portable containment units
- ✓ Spill diversion and retention ponds for larger areas
- ✓ Weirs, booms, or other barriers



Consider the following when selecting or designing a structure:

- *Structural strength* so the containment is capable of supporting the weight of the loads placed on it, including the materials and equipment that will enter the area.
- *Impermeability* so the containment is resistant to penetration of the materials contained in the structure. For example, an area storing acids or corrosives should not be a concrete area, unless the concrete has been sealed with a coating that makes it resistant to the chemicals.
- *Compatibility* of the construction materials with the substances contained in the structure, and the structure's design should provide separation areas for incompatible substances. To find compatibility of chemicals with storage containers or containment coatings see the information at <http://www.flw.com/material/index.html> Also see the Chemical Reactivity Worksheet at <http://response.restoration.noaa.gov/chemaids/react.html> to find out about the reactivity of substances or mixtures of substances.
- *Integrity* so there are no drains, other piping, or openings of any kind where liquids may escape. For example, seal all joints and cracks and do not include floor drains in the area or use cinder blocks in the construction.
- *Security* to prevent vandalism and the entry of unauthorized persons to the area. The containment must allow emergency personnel and equipment to enter. Sumps included in the design should be manually controlled. For general guidance, see the EPA Chemical Safety Alerts and Bulletins like the "Chemical Accident Prevention: Site Security" at <http://yosemite.epa.gov/oswer/CeppoWeb.nsf/content/ap-chsa.htm> and links from the www.michigan.gov/deqwater "Water and Wastewater Security" web site.
- *Protection* from extreme temperatures including ignition sources.

- *Squirt distance control* to contain any liquids spurting from containers if a leak occurred.
- *Capacity* so the containment meets the regulatory minimum holding capacity. Consider the amount of precipitation, such as snow and rainfall, that may accumulate in the containment structure. Generally, areas in Michigan receive an average of 3.5 inches to 4.5 inches in a 25-year, 24-hour rainfall. A record 24-hour precipitation was about 10 inches.

Some other things to consider when designing your secondary containment area include:

- Avoid creating confined spaces.
- Provide adequate lighting and ventilation.
- Adhere to required isolation distances from property lines, public ways, buildings, etc.
- Consider how employees will move materials in and out of the storage and use area and the loading and unloading dock area.

Any collected liquids from secondary containment structures must be characterized to determine if it is a regulated **hazardous waste-DEQ** or **liquid industrial waste-DEQ**. If hauled off site, the applicable waste regulations must be followed (see Chapter 2). If it is discharged on site to the ground, it must be in accordance with the rules associated with Part 31 (Water Resources Protection) of Act 451 (i.e., Part 5 - Spillage of Oil and Polluting Materials, and Part 22 - Groundwater Quality). The Part 5 and Part 22 rules allow discharges of captured precipitation from secondary containment to the ground if the discharge does not contain released materials and meets the conditions listed in R 324.2005(2) and R 323.2210(d). The discharge can not be, or become, injurious; and not cause runoff to, ponding on, or flooding of adjacent property. It also cannot cause erosion or nuisance conditions. When doing a visual inspection before discharging, look for odor, color, turbidity, floatable matter, deposits, or stains. Surface water discharges from secondary containment structures may require a National Pollutant Discharge Elimination System (NPDES) permit from Water Bureau (See Section 3.2.3). For example, if your facility is subject to the Storm Water Discharge Permit Program (Section 3.2.3.d), you will need to meet the sampling and monitoring requirements explained in your permit. See also the EPA Storm Water Management Fact Sheet “[Visual Inspection](#)” for more information.

4.2 Use and Storage Areas

In addition to the regulations identified in the overview of this chapter, facilities must review their permits, including requirements under the storm water program, and determine if they are subject to any regulations that have requirements regarding use and storage areas, including loading and unloading areas. Many of the regulations are written to allow the facility flexibility in meeting requirements to keep materials out of the environment. In addition, a facility may be subject to MIOSHA housekeeping and other requirements).

Fruit and vegetable processors with salts and regulated substances listed in the Part 5 rules have requirements for their use and storage areas:

1. Meet the secondary containment requirements for liquid **polluting materials** stored outdoors, if they meet or exceed the listed threshold management quantities and don't meet any of the listed exemptions in R 324.2003. See Section 6.2.2 for more information about polluting materials.

2. Design, construct, operate, and maintain the use and storage area to keep the materials out of a public sewer system or to surface water or groundwater without authorization. The Part 5 rules allow the facility to determine the best means to do that and do not contain specific requirements that must be followed.
3. Have adequate surveillance of the facility to detect releases and implement procedures to prevent the **polluting materials** from reaching the surface water or groundwater. Each facility needs to determine how to meet this requirement, as it depends on what and how much **polluting material** is involved, how it is stored and used, how close it is to surface water or drains leading to surface water, what soil characteristics and other conditions could impact groundwater exposure, and the availability of pollution prevention and emergency response equipment, etc.
4. Solid **polluting materials**, including salt storage and use areas, must meet the following requirements:
 - Be managed to prevent releases to public sewer systems or to surface water or groundwater.
 - Not be stored within 50 feet of a designated wetland or shore or bank of any lake or stream.
 - Be designed and constructed to remain effective during a 100-year flood if located within a 100-year floodplain.

You can discuss use and storage area requirements for **polluting materials** with the Water Bureau district office in the area where your business is located (staff contact list is at www.deq.state.mi.us/documents/deq-ead-tas-pippcontacts.pdf).

Some **polluting materials** may also have requirements in other regulations. For example:

- **Flammable and combustible liquids-Act 207/MIOSHA** or a **hazardous substance-CERCLA**; see Section 4.3 “Storage Tanks” and “Flammable and Combustible Liquids”. **Polluting materials** exceeding the threshold management quantities in tanks that are exempted from the storage tank regulations, such as process tanks, are subject to the Part 5 regulations.
- Oils meeting the EPA Spill Prevention Control and Measures management quantities have additional storage requirements, see Section 6.2.3.

4.3 Storage Tanks

Many businesses utilize underground storage tanks (USTs), aboveground storage tanks (ASTs), or both in their day-to-day operations. The storage and handling of products such as gasoline, diesel fuel, fuel oils, and other liquid chemicals can have environmental and safety consequences if the tanks are not properly installed and maintained. Also, the product transfer operations must be properly managed to minimize the possibility of releases and possible fire hazards. Storage tank regulations were designed to promote the safe storage and handling of flammable and combustible liquids such as petroleum products and other hazardous substances. Following the regulations will promote safer storage and handling practices and result in economic benefits to manufacturers and consumers.



4.3.1 Underground Storage Tanks

The current Michigan Underground Storage Tank rules (MUSTR) were filed with the Secretary of State on December 18, 1998, and became effective January 2, 1999. The rules provide technical standards for UST systems including corrosion protection, release detection, spill and overfill protection, and compliance and reporting schedules for each type of requirement. These rules provide financial responsibility requirements applicable to owners and operators, including governmental entities, of UST systems. The rules have special requirements for new UST systems installed in approved delineated wellhead protection areas.

Currently, the WHMD Storage Tank Unit (STU) is responsible for implementing Parts 211 MUSTR and 215 MUST Financial Assurance (MUSTFA) of Act 451.

Background

Michigan has approximately 20,475 USTs installed at 7,505 facilities. Manufacturing plants have a large portion of these tanks. Many of these USTs have released or will release petroleum and other regulated chemicals into the environment through spills, overfills, or failures in the tank and piping system. The extensive contamination of soils and groundwater due to LUSTs is a serious problem nationwide.

A regulated UST is defined as a UST or combination of USTs and underground connected piping that have at least 10% of their volume underground and are, were, or may have been used to contain a regulated substance. A regulated substance is defined as a petroleum based product or solvent; a **CAA Section 112(r) substance**; or any chemical included on the **hazardous substance-CERCLA** list in the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Gasoline and ethylene glycol are examples of regulated substances. USTs that are not regulated include USTs storing heating oil for consumptive use on the premises where the tank is located, USTs holding a regulated hazardous waste (see Section 2.4.1), and USTs with a capacity of 1,100 gallons or less used for non-commercial purposes. Other requirements concerning the location of USTs, fire extinguishers, and related equipment used for dispensing fuel and providing collision protection can be found in the Storage and Handling of FL/CL Rules administered by the STU.

Registration

All regulated USTs must be properly registered with the STU. You must complete a **“Registration for Underground Storage Tanks (EQP 3821)”** and submit a \$100-per-tank fee. The tank fee is paid annually to the STU. A UST discovered during tank removal and renovation must also be registered with the STU. You must send an amended form to the STU any time the registration information changes. The registration form must be submitted within 30 days from the date of the change.

DEQ. MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - WASTE AND HAZARDOUS MATERIALS DIVISION	
REGISTRATION OF UNDERGROUND STORAGE TANKS	
<small>The information in this form is required under Part 211, Underground Storage Tank Regulations, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Any owner who knowingly fails to notify or submit false information shall be subject to a misdemeanor and/or civil penalties not to exceed \$5,000 per day for each tank for which notification is not given or for which false information is submitted.</small>	
<input type="checkbox"/> NEW REGISTRATION	<input type="checkbox"/> Use this form to amend information. NDEQ, Office of Fiscal Management, Bureau, Control Unit, P.O. Box 30055, Lansing, MI 48909
<input type="checkbox"/> AMENDED INFORMATION (for Registered USTs Only)	<input type="checkbox"/> Use this form only. NDEQ, WHMD, P.O. Box 30241, Lansing, MI 48909
FACILITY IDENTIFICATION (to be filled in by owner)	
NO. OF TANKS AT FACILITY	NO. OF CONTINUATION SHEETS ATTACHED
I. OWNERSHIP OF TANKS	
<input type="checkbox"/> IF THIS IS A NEW UST, IS IT A PUBLIC OR PRIVATE TANK? <input type="checkbox"/>	<input type="checkbox"/> IF INFORMATION IS THE SAME AS PREVIOUS, PLEASE CHECK <input type="checkbox"/>
OWNER NAME (Corporate/Individual, etc.)	FACILITY NAME OR SITE IDENTIFIER
MAILING ADDRESS	STREET ADDRESS (If D-Six Not Applicable)
CITY	CITY
STATE	STATE
COUNTRY (Please Specify)	COUNTRY
<input type="checkbox"/> USA <input type="checkbox"/> OTHER	
TELEPHONE (including area code)	TELEPHONE (including area code)
TAX PAYER ID OR SOCIAL SECURITY NUMBER	
LATITUDE AND LONGITUDE of facility (if known)	LONGITUDE (if known)
LATITUDE (decimal)	
II. TYPE OF OWNER	
<input type="checkbox"/> FEDERAL	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> STATE GOVERNMENT	<input type="checkbox"/> PRIVATE
<input type="checkbox"/> LOCAL GOVERNMENT	<input type="checkbox"/> ARE TANKS LOCATED ON LAND WITHIN A RESERVATION? <input type="checkbox"/> YES <input type="checkbox"/> NO
<input type="checkbox"/> IF TANKS ARE LOCATED WITHIN A RESERVATION, DOES A NATIVE AMERICAN TRIBE OWN TANKS? <input type="checkbox"/> YES <input type="checkbox"/> NO	
<input type="checkbox"/> IF TANKS ARE OWNED BY A TRIBE, NAME OF TRIBE	
III. TYPE OF FACILITY	
<input type="checkbox"/> PUBLIC GAS STATION	<input type="checkbox"/> LOCAL GOVERNMENT
<input type="checkbox"/> PRIVATE GAS STATION	<input type="checkbox"/> STATE GOVERNMENT
<input type="checkbox"/> MARINE GAS STATION	<input type="checkbox"/> FEDERAL/ARMY/NAVY
<input type="checkbox"/> PETROLEUM DISTRIBUTOR	<input type="checkbox"/> FEDERAL/MILITARY
<input type="checkbox"/> AIRLINE AND/OR AIRCRAFT OWNER	<input type="checkbox"/> COMMERCIAL
<input type="checkbox"/> AUTO DEALERSHIP	<input type="checkbox"/> INDUSTRIAL
<input type="checkbox"/> RAILROAD	<input type="checkbox"/> HOSPITAL
<input type="checkbox"/> CONTRACTOR	<input type="checkbox"/> TRUCKING/TRANSPORT
<input type="checkbox"/> UTILITIES	<input type="checkbox"/> RESIDENTIAL
<input type="checkbox"/> FARM	<input type="checkbox"/> OTHER (Specify)
IV. CONTACT PERSON	
NAME	JOB TITLE
TELEPHONE (including area code)	
V. CERTIFICATION	
I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS FORM AND ALL ATTACHED DOCUMENTS AND THAT I HAVE VERIFIED THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.	
NAME AND OFFICIAL TITLE OF OWNER OR OWNER'S AUTHORIZED REPRESENTATIVE	SIGNATURE
DATE	

Financial Responsibility

You must have pollution liability insurance or demonstrate financial responsibility to cover the costs of cleanups, property damage, and third party compensation for bodily injury resulting from leaking underground storage tanks. You will be required to show proof of financial responsibility when you register the tanks. For further information regarding financial responsibility requirements, see the document “[Michigan Dollars and Sense - Financial Responsibility Requirements for Michigan USTs.](#)”

Existing Installations

The UST system must be protected from potential releases and monitored. Without these safeguards in place, the UST is more likely to leak, damage the environment, and leave you with costly cleanups. USTs that are not in compliance with the December 22, 1988, upgrade requirements of corrosion protection, overfill prevention, release detection, and spill prevention must have been closed by December 22, 1999. Closure may occur by removing the UST or filling the UST with inert material if removal threatens a structure.



For more information on release detection, spill protection, overfill prevention, and corrosion protection, call the Storage Tank Unit at (517) 335-7211 or visit their Web site at www.michigan.gov/deqland (select “Storage Tanks”).

New Installations

The requirements for spill protection, overfill prevention, corrosion protection, and release detection must be met at the time of installation. A “**Notice of Proposed Installation of Underground Storage Tanks**” ([EQP 3820](#)) must be completed and submitted with the site diagram detailing the materials and part numbers used on the UST installation as appropriate.

At least 30 days before you install or use a UST system in Michigan, you must submit installation plans for review to the STU. The plans submitted for installation approval must include: a site diagram detailing the location of USTs, property lines, buildings, and drinking water wells; and a list of materials used for the UST installation as described in MUSTR. R 29.2109 ([Rule 9](#)) of MUSTR also has specific requirements concerning secondary containment and the placement of UST systems near drinking water wells and wellhead protection zones. UST systems with pressurized piping, placed after January 2, 1999, must be installed with secondary containment piping.



The plans are reviewed within 45 days, and then an approval or deficiency letter is sent to you. After approval of the plans, you must notify the STU of the installation date of the UST system seven days prior to the installation. The STU field staff will inspect the installation within two working days. Following inspection of the site and prior to use of the UST system, a registration

form with a \$100 fee per UST must be sent to STU. A certificate will then be mailed to the owner/operator to be displayed at the facility location.

Any person who installs or removes a UST system in Michigan must obtain \$1 million of pollution liability insurance. This insurance should not be confused with the financial responsibility requirements found on page 4-10.

Tank Removal, Closure, and Changes of Stored Material

There are two types of closures for UST systems that are allowed: temporary and permanent. A temporary closure is allowed for up to a 12-month period, only if it is intended to bring the UST back into service. To temporarily close a UST system, you must submit an **“Intent of Removal, Closure, or Change-in-Service of Underground Storage Tanks” (EQP 3824)** form notifying the STU of the temporary closure. You must also continue operating the corrosion protection and release detection systems. Release detection is not required if the UST system is empty. A temporarily closed UST system may not be brought back into service unless it is fully upgraded for corrosion protection, overfill prevention, release detection, and spill protection. The UST system must pass tank and line tightness testing.

A UST system is considered permanently closed when the UST system is empty for 30 days or more and does not meet the requirements for temporary closure or change-in-service. A permanently closed UST system must be emptied and cleaned by removing all liquids and accumulated sludge and purging all vapors.

When materials are removed from tanks, it is necessary to characterize those materials and sludges to determine if they are subject to waste regulations:

- Material that will be **used as is**, either by the generator or another company, is not considered a waste. This exclusion does not apply if the material has to be filtered or altered in any way before use. If the material is classified as a US Department of Transportation hazardous material, transportation of that material must meet that agency’s requirements.
- Waste gasoline, diesel fuel, or other fuels that are being sent to a fuel blender are not considered hazardous waste because they were originally a fuel. These would have to be shipped to the blender as a liquid industrial waste.
- Contaminated soils, groundwater, or other debris generated as the result of contamination from leaking underground storage tanks are exempted from the hazardous waste regulations only if they: exhibit benzene or other D019 to D043 constituents AND the site is being cleaned up under storage tank regulations.

This exemption does not apply to aboveground storage tank cleanups or from contamination associated with a UST due to overfilling or other causes besides leaking.

Removed materials may be characteristic or listed hazardous waste if the above situations do not apply. Discuss waste determination questions with your consultant or WHMD district office.

If waste is generated from the tank cleanout, it may affect a facility’s hazardous waste generator status because of the increased waste generation in that month. See Section 2.4.4 for more information about re-notifying, using the proper identification number, or obtaining a site

identification number if the facility has not previously shipped waste off-site. It will also be necessary to use permitted and registered transporters, complete and submit copies of waste manifests, and meet other waste requirements when shipping waste off-site. There are common violations from improperly handling wastes generated from tank closures. Chapter 2 discusses hazardous and liquid industrial waste requirements in-depth.

Tanks not being reused must be emptied, inerted, cleaned, and rendered unusable by cutting holes in the tank heads and shell. Before the tank is cut up for scrap or disposal, the atmosphere in the tank must be tested to ensure its safety. If it is a steel tank, it can be sent to a recycler. Check the yellow pages under the scrap metal heading or go to the Recycled Material Market Directory at www.michigan.gov/deqp2 (select “Recycling”). If it is a fiberglass tank or any tank other than steel, it must be destroyed and sent to an appropriate landfill for disposal. Contact the landfill for specific requirements.

All permanently closed UST systems must be removed from the ground and the STU must be notified of the pending removal by submitting an **“Intent of Removal, Closure, or Change-in-Service of Underground Storage Tanks” (EQP 3824)** 30 days prior to the pending removal date. A site assessment must be performed as described on page 4-13. In cases where a permanent structure is above or near the UST, the UST system may be closed in-place. A closed in-place UST must be filled with an inert solid material such as concrete or pea gravel. A site assessment must be performed. Once the UST is closed, you must submit an amended **“Registration for Underground Storage Tanks” (EQP 3821)** to the STU within 30 days of the closure. In place of an amended EQP 3821, the **“Underground Storage Tank System Site Assessment Report and Closure or Change-In-Service Registration” (EQP 3881)** can be submitted within 45 days of permanent closure or change-in-service.

When the material stored in a UST is changed from a regulated substance to a non-regulated substance (such as water or heating oil), follow the same procedures as though you permanently closed the UST system.

Record Keeping Requirements

It is important to keep records of your daily operations, purchases of equipment, and other information relating to the operation of your UST system. These records are needed by the inspector and might also help you obtain cheaper insurance rates. Records must be kept on routine maintenance of the UST system, release detection, inventory control, site assessment results, reporting of releases, and corrective actions. These records should be kept on site and be immediately available upon request. If the records are kept at an alternative site, they must be available for inspection. It is recommended you keep these records indefinitely.

Releases, Reporting, and Investigation

Any time a non-emergency release is suspected or confirmed, you must report the release within 24 hours to the STU. See Chapter 6 for instructions and regulations on how to properly report a non-emergency spill. Once a suspected release has been reported, you have 14 days to investigate the release and either confirm the release or cancel the suspected release report. If a suspected release is upgraded to a confirmed release, or if you initially know that you have a confirmed release, you must begin corrective action as described on page 4-14.



All emergency spills or releases must be reported immediately to the Pollution Emergency Alerting System (PEAS) at (800) 292-4706 in Michigan or (517) 373-7660 if outside Michigan.

To report a confirmed release from a UST call (517) 335-2690, fax the release report to (517) 335-2245, or use the online form '[EQP3826.asp](#)' located in the 'Forms & Documents' tab in the Storage Tank Information Center which can be found in the 'Online Services' link at the top of the DEQ web site.

Site Assessments

When a UST system is closed or a change-in-service occurs, the UST site must be assessed for past releases where contamination is most likely to be present. A proper site assessment requires sampling of soil and/or water. A laboratory using EPA or state acceptable methods must analyze these samples. R 29.2155 ([Rule 55](#)) of MUSTR lists the proper sampling guidelines for site assessments. The site assessment results must be submitted to the STU on the **"Underground Storage Tank System Site Assessment Report and Closure or Change-in-Service Registration" (EQP 3881)**. Also, STU's Informational Memoranda **"Test Methodology for Site Assessments" (IM-3)**, succinctly lists the site assessment sampling requirements.

A site assessment is not required if contaminated soils, groundwater, or free product are discovered. If you find one of the following indicators of a release of regulated product, you must report a confirmed release to the STU within 24 hours of discovery: visible or olfactory evidence of contamination at the UST site during excavation, if field screening instrumentation (e.g., a photo ionization meter [PID]) indicates the presence of contamination, or if your site assessment shows contamination. You must then follow the Remediation and Redevelopment Division's (RRD) guidelines for further testing and clean up the contamination as described on page 4-14.



Corrective Action

You must hire a qualified underground storage tank consultant (QC) to perform corrective action at your site. The QC must have \$1 million coverage in pollution liability insurance. A list of QCs is available from the RRD. Be aware that even though you must hire a QC, you are ultimately liable for assuring that corrective actions are performed at your site.

After a release has been reported, you or your QC must immediately begin to perform initial response actions. If the corrective action is not completed after performing the initial response activities, then the QC must determine the extent of the contamination, conduct a risk-based corrective action (RBCA) assessment, and prepare a Corrective Action Plan (CAP) to further address the contamination at the site. You can find more information on CAPs and related reporting requirements in Part 213 (Leaking Underground Storage Tanks [LUST]) of Act 451. In addition to the above requirements, the QC must submit the following reports to the STU: initial assessment report, final assessment report, and the closure report.

FOLLOW-UP REPORTS FOR LUST

Forms required by DEQ by regulation, due within:

90 days -----	LUST Initial Assessment Report (EQP 3841)
365 days -----	LUST Final Assessment Report (EQP 3842)
Submitted within 30 days after the completion of the Corrective Action -----	LUST Closure Report (EQP 3843)
Miscellaneous reports that are required (as applicable to the site) -----	Free Product Fax Transmittal (EQP 3800) Notice of Migration of Contamination (EQP 4482) Notice Regarding Discarded or Abandoned Containers (EQP 4476) Notice to Impacted Parties of Corrective Action (EQP 3852)

Each site must be evaluated and cleaned up based on the current cleanup criteria and the level of risk that the site poses to public health and the environment as determined by the QC performing the corrective action. The American Society of Testing and Materials' document entitled "**Standard Guide for Risk Based Corrective Action (RBCA) Applied at Petroleum Release Sites**" (E-1739-95) has been adopted by reference and is effective for all UST releases. This standard allows for a more streamlined approach to cleanups in Michigan. The RRD has the necessary tables and guidance documents to implement RBCA.

Baseline Environmental Assessment (BEA)

Please see Chapter 7 for information on the BEA process and how to avoid liability for existing contamination when purchasing/leasing/operating at a site of contamination.

4.3.2 Aboveground Storage Tanks

Aboveground storage tanks (ASTs) are often used for the same purposes as USTs. An AST system has less than 10 percent of the volume of the storage tank system underground. While AST systems do not pose the same environmental or human health risks as USTs, the impacts may be significant if their contents are accidentally released. One advantage of ASTs is that they are highly visible so any leaks or defects can be detected early.



The Storage Tank Unit regulates ASTs that are used to store **flammable and combustible liquids-Act 207** with a flashpoint of less than 200 degrees Fahrenheit. The aboveground storage of **flammable and combustible liquids-MIOSHA** with a flashpoint greater than 200 degrees Fahrenheit can be regulated under the MIOSHA General Industry Safety Standards - Part 75, Flammable and Combustible Liquids and/or the fire prevention code adopted by the local municipality.

Aboveground storage locations that fit one or more of the following conditions must be plan reviewed and certified by the STU:

- Any flammable compressed gas or liquefied petroleum gas container filling location.
- A facility that supplies flammable compressed gas or any liquefied petroleum gas that has a tank with a water capacity of more than 2,000 gallons, or two or more tanks with an aggregate water capacity of more than 4,000 gallons.
- A facility that supplies **flammable liquid or combustible liquid-Act 207** that has an individual tank storage capacity of more than 1,100 gallons.

Installation

The plan review form, “**Application For Installation of Aboveground Storage Tanks**” ([EQP 3859](#)), gives you a complete list of what must be submitted with your application, including the plan review fee of \$203 for each AST being installed. Plans are reviewed within 45 days after receipt. Following review of the plans, you will receive a letter indicating approval or denial of the plan. For a denial, the deficiencies are listed. The deficiencies need to be corrected before approval can be granted.



Once the plan review is approved, a STU Hazardous Materials Storage Inspector will inspect your facility prior to placing an AST in service and after the installation is complete.

A certification fee of \$61.50 is assessed annually per year/per tank. The billing period is October 1 of year X through September 30 of the following year. The certification fee for CNG tanks is based on standard cubic feet per minute (SCFM) storage capacity. One tank is considered to be 18,500 SCFM.

You may request the applicable plan review form, “**Application For Installation of Aboveground Storage Tanks**” ([EQP 3859](#)), and get assistance completing this form by calling the STU at (517) 335-7211 or go to www.michigan.gov/deqland (select “Storage Tanks” then “Aboveground Storage Tanks”).

ASTs storing **flammable and combustible liquids-Act 207** that do not have to be plan reviewed are still subject to the following requirements found in the Storage and Handling of FL/CL Rules.

Secondary Containment

Most ASTs must have secondary containment. Several containment systems are acceptable to the STU: tanks with built in secondary containment, vaulted systems, concrete encasement, and lightweight thermal insulated tanks. For information on secondary containment, call the STU directly at (517) 335-7211. There are also alternative methods of secondary containment, which must be approved during the plan review conducted by the STU. For more information about secondary containment, see Section 4.1.

Corrosion Protection

Most ASTs must have corrosion protection. A single- or double-bottom shop-manufactured tank that has an external mastic-coated bottom can only be installed on a concrete or asphalt pad that is higher than the surrounding dike floor. Cathodic protection that is properly engineered and maintained must be used for the exterior of single- or double-bottom tanks that are installed on earth and gravel. Also, cathodic protection can be used on single- or double-bottom tanks that are installed on a concrete or asphalt pad at the same level as the rest of the dike floor. Additional requirements and guidelines can be found in the Storage and Handling of FL/CL Rules.

Control of Ignition Sources

ASTs, as regulated by the STU, have fire hazards. Precautions should be taken to prevent the ignition of flammable vapors. Sources of ignition include but are not limited to: open flames, cutting and welding, thermal heat, spontaneous ignition, stray currents, smoking, etc. All equipment such as tanks, machinery, and piping must be bonded or otherwise connected to the ground to prevent static electricity.

AST System Out-of-Service

An AST system that is going to be out-of-service for more than 12 months must follow the proper procedures. The AST system owner/operator is required to have the tank and related piping completely emptied and cleaned (professionally) to a vapor free condition. The piping must be disconnected from the AST system. The AST system must also be safeguarded against trespass. The owner/operator has the option of removing the tank system from the property. All tanks removed from the property must be disposed of properly. The facility owner/operator must submit the **“Change of Information Form” (EQP 3858)** for ASTs to notify the STU that the AST system is out-of-service or of the AST removal.

Releases, Reporting, and Investigation

Releases or suspected releases of a regulated substance from flammable and combustible liquid ASTs and heating oil ASTs must be reported to the appropriate Remediation and Redevelopment Division (RRD) district office (see Appendix B for phone numbers) and the local fire department having jurisdiction, or PEAS at (800) 292-4706 within Michigan or (517) 373-7660 if outside Michigan. Some signs that a release has occurred are visibly stained soils, holes in the AST, and odoriferous soils.

Emergency Planning and Training

You need to know what to do in case of a fire, spill, or any on-site emergency. An emergency action plan must be available and made known to employees to respond to fire or other emergencies. (Alternate fire safety measures on-site must be in place while any fire safety equipment is shut down.) This emergency plan should be coordinated with your local emergency response agencies, such as fire, police, etc. In most cases, your local agencies will respond to your alarm or call. Additional requirements for release prevention and response planning is found in Chapter 6. Without a proper emergency plan in place, you are likely to lose more products, increase your costs of cleanup, and endanger the environment and human lives.

Baseline Environmental Assessment (BEA)

Please see Chapter 7 for information on the BEA process and to avoid liability for existing contamination when purchasing/leasing/operating at a site of contamination.

4.4 Transportation, Shipping, and Receiving of Hazardous Materials

The transportation of **hazardous material-USDOT** is regulated by the U.S. Department of Transportation. The USDOT operates under the authority of the Hazardous Materials Transportation Act and the Federal Hazardous Materials Regulations (FHMR) contained in Title 49, Parts 100-185 of the Code of Federal Regulations, administered by the Pipeline and Hazardous Materials Safety Administrations (PHMSA). Within USDOT, the Federal Motor Carrier Safety Administration (FMCSA) is responsible for enforcing the FHMR as it applies to highway transportation. At the state level, the Michigan State Police Motor Carrier Division is responsible for enforcing the FHMR and the Federal Motor Carrier Safety Regulations, both of which have been adopted into state law under Michigan's Motor Carrier Safety Act, Public Act 181 of 1963, as amended (Act 181).

**4.4.1 Hazardous Material Transporters**

The USDOT defines a **hazardous material-USDOT** as “a substance or material that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, which includes **hazardous waste-USDOT**.” **Hazardous material-USDOT** may pose varying degrees of risk in transportation, depending on the type of substance. Transporters of hazardous goods must be aware of how these materials are classified to ensure compliance with marking, labeling, placarding, and shipping paper requirements. **Hazardous material-USDOT** may be classified as any of the following: explosives, gases, flammable liquids, flammable solids, oxidizing substances, poisons and infectious substances, radioactive material, corrosives, miscellaneous goods, and other regulated materials (ORM).

A table of **hazardous material-USDOT** classes and an index to their class definition are included in Title 49, [Part 173.2](#) of the Code of Federal Regulations. If the commodity you are transporting is included in one of the classifications identified, you are subject to the USDOT's Hazardous Materials Regulations. Another table of **hazardous materials-USDOT** is contained in Title 49, Part 172.101 of the Code of Federal Regulations. This table is more detailed and lists proper shipping names, class/division numbers, and provides guidance for the packaging and handling of specific **hazardous material-USDOT**. This table can be downloaded off the Internet at www.myregs.com/dotrspa (Select “Hazardous Materials Regulations” then “Part 172”).

4.4.2 Liability of Improper Shipments of Hazardous Materials

Compliance with the Hazardous Materials Regulations is the responsibility of both the shipper and carrier. General shipper responsibilities are contained in Title 49, [Part 173](#) of the Code of Federal Regulations. In many cases, shipper and carrier responsibilities overlap. Although both the shipper and the carrier can perform the task, the carrier is ultimately liable for it. Title 49, Part 387 of the Code of Federal Regulations sets the insurance requirements for vehicles transporting certain amounts of **hazardous materials-USDOT**. Both Michigan and federal law

require the carrier to maintain proof of financial responsibility on the federal form, “**Endorsement for Motor Carrier Policies of Insurance for Public Liability Under Sections 29 and 30 of the Motor Carrier Act of 1980**” (MCS-90). Additionally, both carriers and shippers must properly train their employees as required in 49 CFR 172. Table 4.2 summarizes shipper and carrier responsibilities.

TABLE 4.2 SHIPPER AND CARRIER RESPONSIBILITIES	
Shipper Responsibilities	<ul style="list-style-type: none"> • Determine whether the material meets the definition of a hazardous material-USDOT. • Assign proper shipping name. • Determine class/division. • Assign identification number. • Apply hazard warning labels. • Provide shipper certification. • Properly package, mark, and placard materials and carrier. • Ensure compatibility between materials. • Properly block and brace cargo. • Identify and maintain 24-hour emergency response telephone number and emergency response information.
Carrier Responsibilities	<ul style="list-style-type: none"> • Meet shipper's requirements when performing shipper's functions. • Compile shipping papers. • Placard carrier and properly mark materials. • Load and unload cargo. • Ensure compatibility between materials. • Properly block and brace cargo.

4.4.3 Hazardous Materials Registration Program

The Hazardous Materials Regulations require registration for each person that offers or transports any shipment of hazardous materials that requires placarding (with an exception for farmers offering or transporting hazardous materials in direct support of their farming activities). Each person subject to the requirements of this subpart must pay an annual fee.

Registrants must maintain a copy of the application statement and the Certificate at their principal place of business for a period of three years from the date of issuance.

Each motor carrier subject to the registration must carry a copy of its current Certificate of Registration or another document bearing the registration number identified as the “US DOT Hazmat Reg. No.” This document must be on board each truck and truck tractor (not including trailers and semi-trailers) used to transport hazardous materials subject to registration. It must be made available, upon request, to enforcement personnel.

Information about the USDOT’s Hazardous Materials Registration Program including the registration statement (**DOT F 5800.2**) and instruction booklet can be found at hazmat.dot.gov/regs/register/register.htm. You can also call the Hazardous Materials Registration Program at (202) 366-4109 to receive instructions on how to register and obtain the “**Hazardous Materials Registration Statement**” (**DOT F 5800.2**).

4.4.4 Shipping Papers



Stipulations for **hazardous material-USDOT** shipping papers are contained in 49 CFR 172, [Subpart C](#). According to the Hazardous Materials Regulations, a shipping paper is any shipping document that communicates a hazard and conforms to the requirements contained in the subpart. Essentially, all shipping papers must have four elements referred to as a basic shipping description: (1) proper shipping name; (2) hazard class/division; (3) identification number (4-digit number preceded by “NA” or “UN”); and (4) packaging group (a grouping according to the degree of danger presented by hazardous materials – I, II, or III). All this information is provided in the Hazardous Materials Table contained in 49 CFR 172.101. When preparing your shipping papers, the basic shipping description must be entered in the order shown above.

In addition to the basic shipping description, shipping papers may also contain the following:

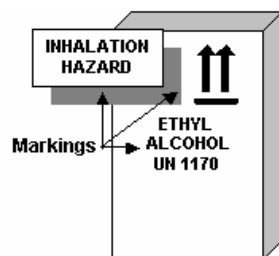
- The total quantity transported.
- Shipper certification – certifies materials being transported are in compliance with regulations.
- Emergency response telephone number and response information – specific requirements pertaining to this information are outlined in 49 CFR [172.602 - 603](#).

The U.S. Department of Transportation periodically offers training on how to properly fill out a manifest/shipping papers for hazardous material transportation and disposal. See Section 4.4.10 on how to access this federal training opportunity.

The North American Emergency Response Guidebook is a reference guide that identifies the proper response procedures that should be taken in the event of a hazardous materials spill or accident. It also lists specific and generic hazards associated with a particular material. The guidebook can be accessed from the Internet at hazmat.dot.gov/pubs/erg/guidebook.htm.

Carriers are required to retain shipping papers for a period of 375 days, shippers are required to retain them for 2 years, and for hazardous waste manifests, the retention period is 3 years after the material is accepted by the carrier. Depending on the material being transported, there may be additional requirements contained in 49 CFR 172.203. Additional information can be found at the Michigan State Police Motor Carrier Division web site www.michigan.gov/motorcarrier (select “Hazardous Materials” then “Hazardous Materials Bulletins”).

4.4.5 Marking



Markings are placed directly on the outer packaging of **hazardous material-USDOT** to identify the contents inside. The marking will provide a descriptive name, identification number (4-digit number preceded by “UN” or “NA”), specifications, plus any required instructions and/or cautions.

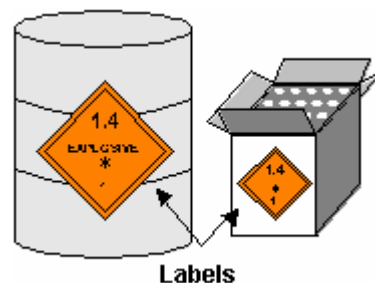
The provisions for marking packages are contained in 49 CFR 172, [Subpart D](#). The basic marking requirement consists of the proper shipping name (e.g., Ethyl Alcohol) and the identification number (e.g., UN 1170) of the

hazardous material-USDOT contained in the package. This information is provided in the Hazardous Materials Table contained in 49 CFR 172.101, which can be downloaded off the Internet at www.myregs.com/dotrspa (Select “Hazardous Materials Regulations” then “Part 172”). Depending on the material, there may be additional marking requirements. Empty container exceptions as well as information on authorized abbreviations; bulk packaging; liquid hazardous materials; and marking requirements for explosives, poisonous, and ORM-D materials can all be found in 49 CFR 172, Subpart D.

Additional information about marking requirements can be found at the Michigan State Police Motor Carrier Division web site www.michigan.gov/motorcarrier (select “Hazardous Materials” then “Hazardous Materials Bulletins”).

4.4.6 Labeling of Containers

A label is a prescribed hazard warning notice that is applied to the outside of shipping containers of **hazardous material-USDOT**. Labels identify the primary and subsidiary hazards specific to materials and may give information about handling precautions and prohibitions as well.

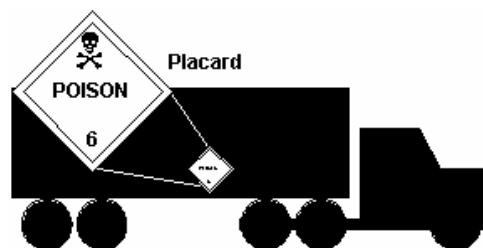


If you are transporting **hazardous material-USDOT**, the containers must be labeled accordingly. General labeling requirements are contained in 49 CFR 172, [Subpart E](#). A table that identifies proper labeling specifications for each **hazardous material-USDOT** class and division can be found in 49 CFR 172.400. Other sections in Subpart E address authorized label modifications, label placement, and specifications. Title 49, Part 172, Subpart E of the Code of Federal Regulations provides a separate section for each authorized label and gives a description and an example of the label. It is recommended that for specific information on labeling requirements, you refer directly to 49 CFR 172, Subpart E.

Additional information about labeling requirements can be found at the Michigan State Police Motor Carrier Division web site www.michigan.gov/motorcarrier (select “Hazardous Materials” then “Hazardous Materials Bulletins”).

4.4.7 Placarding of Carriers

Placards are displayed on each end and each side of a carrier and are used to communicate the hazard to industry personnel, the general public, and first responders. Unless the regulations tell you differently, each person who offers or transports a regulated **hazardous material-USDOT** must comply with the placarding requirements.



General placarding requirements are contained in 49 CFR 172, [Subpart F](#). Placard specifications for each **hazardous material-USDOT** class and division are located in 49 CFR 172.500-560.

When evaluating placarding requirements you should be familiar with two classification tables, referred to as “Table 1” and “Table 2”, located in 49 CFR [172.504](#). These tables identify when a

carrier must be placarded. According to the regulations, the following hazardous material-USDOT classes must be placarded regardless of quantity:

CLASS	DIVISION
Explosives	1.1, 1.2, 1.3
Poisonous Gas	2.3
Dangerous When Wet	4.3
Organic Peroxide	5.2*
Poison/Toxic	6.1**
Radioactive	7
* Type B, liquid or solid, temperature controlled	
** PG1, Inhalation Hazard, Zone A and B	

With the exception of the materials listed above, a placard is not required for materials if the aggregate gross weight does not exceed 1,000 lbs., unless:

- The material is in a package that meets the definition of a “bulk package.” A bulk package is defined as a single container with: (1) capacity greater than 119 gallons as a receptacle for a liquid; (2) a net mass greater than 882 lbs. and a capacity greater than 119 gallons as a receptacle for a solid; or (3) a water capacity greater than 1,000 lbs. as a receptacle for a gas.
- or
- The material has a mandatory subsidiary hazard placard requirement (see 49 CFR 172.505). Subsidiary hazards that require a placard include: (1) Poison Inhalation Hazards (PIH); (2) Dangerous When Wet (4.3); and (3) Radioactive materials with a corrosive subsidiary. All other subsidiary hazards may be placarded, but it is not required.

Empty, non-bulk packages containing only the residue of a **hazardous material-USDOT** do not have to be placarded. Neither do containers that are cleaned and purged or refilled with a non-hazardous material.

Additional information on placard applicability, placement, specifications, and other requirements can be found in 49 CFR 172, [Subpart F](#). You can also view a list of requirements on the Michigan State Police, Motor Carrier Division web site at www.michigan.gov/motorcarrier (select “Hazardous Materials” then “Hazardous Materials Bulletins”) or contact the USDOT Hazardous Material Information Center at (800) 467-4922.

4.4.8 Materials of Trade

Materials of Trade (MOTs) are hazardous materials that are carried on a motor vehicle for at least one of the following purposes:

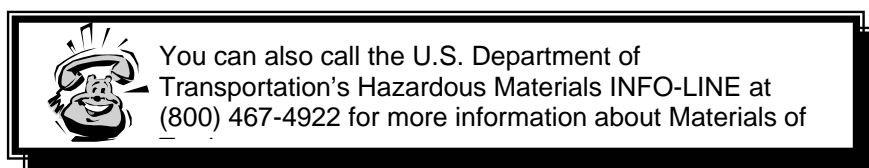
- To protect the health and safety of the motor vehicle operator or passengers (e.g., insect repellent, self-contained breathing apparatus, and fire extinguishers).

- To support the operation or maintenance of a motor vehicle or auxiliary equipment (e.g., engine starting fluid, spare battery, and gasoline).
- When carried by a private motor carrier to directly support a principal business that is not transportation (e.g., lawn care, pest control, plumbing, welding, painting, and door-to-door sales).

Since MOTs are transported in small quantities, usually as part of a business, they are subject to less regulation. Title 49, Part 173.6 of the Code of Federal Regulations identifies the rules that apply to MOTs, the exceptions, and qualifying factors.

Basically, MOTs do not require shipping papers, emergency response information, placarding, formal training, or record keeping. However, if you operate a vehicle containing MOTs, you must know the materials are hazardous and you must be aware of the requirements for MOTs. There are some packaging and marking requirements that apply to certain MOTs that are explained in 49 CFR 173.6.

If you would like more information about MOTs, download a copy of the publication “What are Materials of Trade, and What Regulations Apply?” at hazmat.dot.gov/pubs/hm200/mots05.pdf.



4.4.9 Loading and Unloading, Compatibility, and Packaging of Hazardous Materials

Regulations pertaining to the loading and unloading of **hazardous material-USDOT** to and from a motor carrier are contained in Title 49, Part 177, [Subpart B](#) of the Code of Federal Regulations. 49 CFR 177, Subpart B identifies the general unloading and loading regulations that apply to all **hazardous material-USDOT** transportation and specific regulations that pertain to the unloading and loading of a particular class or division of **hazardous material-USDOT**. Since there are so many regulations that refer to specific materials, it is best to find them in the regulations cited above. In addition to these federal regulations, specific unloading and loading instructions for **flammable and combustible liquids-Act 207** are provided in administrative rules [R 29.2201-2234](#), promulgated under the Michigan Fire Prevention Code, Public Act 207 of 1941, as amended.

Both shippers and carriers are responsible for compatibility. The requirement for shippers to comply with compatibility considerations is contained in 49 CFR [173.22](#). These provisions are provided to ensure that incompatible substances are segregated during transport. In order to determine compatibility for shipments by highway, shippers and carriers should refer to 49 CFR [177.848](#), Segregation of Hazardous Materials.

General requirements for packaging and packages are contained in 49 CFR [173.24](#). This section addresses topics like applicability, specifications,



compatibility, closures, and venting. Empty packages are regulated under 49 CFR [173.29](#). Except where otherwise stated, empty packaging that contains only the residue of a **hazardous material-USDOT** shall be offered for transportation and transported in the same manner as when it previously contained a greater quantity of that **hazardous material-USDOT**.

4.4.10 Employee Training Requirements

These requirements can be found in 49 CFR Part 172, [Subpart H](#) (Sections 172.700-704) and applies to intrastate and interstate transportation, and to both shippers and motor carriers.

The training standard requires training in the following areas: General Awareness/Familiarization; Function Specific; Safety, Modal-Specific, Security Awareness Training and in certain circumstances, In-depth Security Training.

The General Awareness/Familiarization portion requires training to provide familiarity with the FHMR, and to enable the employee to recognize and identify hazardous materials consistent with the hazard communication standards (markings, labels, placards, etc.).

Function-Specific Training specifies that employees must receive training concerning the regulations that are specifically applicable to the functions the employee performs. The specific training provided will vary depending on the individual's involvement in the transportation system. For example, a shipping clerk would need training in the regulations applicable to shipping papers, whereas a dock employee would need loading and unloading, outage standards and package integrity, segregation and separation training, etc.

Safety Training must cover the emergency response information required in 49 CFR 172, [Subpart G](#), measures to protect the employee from the hazards associated with materials to which they may be exposed to in the workplace, and methods and procedures for avoiding accidents. One exception to this portion of the training requirement are employees who repair, modify, recondition, or test hazardous materials packaging, and who do not perform any other function subject to the regulations, do not have to receive safety training.

Security Awareness Training was added to the training. As part of the required training a hazmat employee must receive training on recognizing and responding to possible security threats and an awareness of security risks associated with hazardous material transportation.

“Hazmat employee” means a person who is employed by a hazmat employer and who in the course of employment directly affects hazardous materials transportation safety. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term includes an individual, including a self-employed individual, employed by a hazmat employer who, during the course of employment: (1) Loads, unloads, or handles hazardous materials; (2) Manufactures, tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packagings as qualified for use in the transportation of hazardous materials; (3) Prepares hazardous materials for transportation; (4) Is responsible for safety of transporting hazardous materials; or (5) Operates a vehicle used to transport hazardous materials.

“Hazmat employer” means a person who uses one or more of its employees in connection with: transporting hazardous materials in commerce; causing hazardous materials to be transported or shipped in commerce; or representing, marking, certifying, selling, offering, manufacturing, reconditioning, testing, repairing, or modifying containers, drums, or packagings as qualified for use in the transportation of hazardous materials. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term also includes any department, agency, or instrumentality of the United States, a State, a political subdivision of a State, or an Indian tribe engaged in an activity described in the first sentence of this definition.

This training must be done as part of the regular hazmat training and in no case later than March 24, 2006.

In-depth Security Training is required of hazmat employees of persons who are required to have a Security Plan in accordance with 49 CFR Part 172, [Subpart I](#) (see Section 6.2.7). This training must include company security objectives, specific security procedures, employee responsibilities, actions to take in the event of a security breach and the organizational security structure. For highway transportation, the mode-specific requirements for highway transportation are found in 49 CFR [177.816](#). This section requires training on the Federal Motor Carrier Safety Regulations (FMCSR); the safe operation of the vehicle (backing, braking, parking, etc.); pre-trip safety inspections; use of vehicle's controls and equipment, including emergency equipment; effects of braking and curves, speed on vehicle control; hazardous weather or road conditions; operations in tunnels, bridges, and railroad crossings; vehicle attendance, parking, smoking, routing, and incident reporting; segregation of cargo; loading and unloading, load securement; and specialized training for cargo tank and portable tank operations, and other specific requirements. The CDL testing requirements may be used for compliance with this portion of the training for person with a hazardous materials or tank vehicle endorsement.

Other training standards may be substituted for portions of the USDOT training requirements, if they meet the standards outlined in 49 CFR Part 172, [Subpart H](#). For example, OSHA or EPA training may cover portions of the training required by USDOT, and would not have to be repeated. If the training differs in any technical areas, like definitions, then the employee must be trained in those areas. Additionally, training completed by previous employers may also be used, if documented.

The training for a hazmat employee must be completed within 90 days after employment. Employees who change hazardous materials job functions must complete training in the new job function(s) within 90 days after the change. A hazmat employee may perform new hazardous materials job functions before completing training if he does so under the supervision of a properly trained and knowledgeable hazmat employee.

Training must be done every three years, but assumed in that requirement is the fact that any time the regulations change affecting a particular job function, the employee(s) responsible for that function must be trained in the changes. The training may be done within the company or through other public or private sources.

A record of current training, inclusive of the preceding three years, must be created and retained by the employer for each hazmat employee for as long as they are employed as a hazmat employee and for 90 days thereafter. The record must include the employee's name; the most recent training completion date; a description, copy, or the location of the training materials used to meet the requirements; the name and address of the instructor(s); and a certification that the hazmat employee has been trained and tested.

There are no exceptions to the training standards for any quantities or classes of hazardous materials, unless a particular operation or material is excepted from the entire subchapter. While the regulations provide great flexibility in the details of the training supplied (i.e., no minimum number of hours or test questions), inherent in that flexibility is a large amount of liability should a hazardous materials incident occur, especially if employee error is a causative factor. Employers are cautioned to thoroughly examine the training program their employee receives, particularly if the training is offered through an outside source.

Additionally, Section 49 CFR [172.606\(a\)](#), requires carriers to instruct drivers to contact the carrier in the event of a hazardous materials incident.

Hazardous Material Transportation Seminars and Workshops are for any employee who works in a shipping, receiving or a material handling area, or who may be involved in preparing or transporting hazardous materials, including hazardous waste. The U.S Department of Transportation periodically offers [one-day workshops](#) on how to adhere to the hazardous material regulations, by showing employees how to properly describe a hazardous material on manifests/shipping papers. To access the training schedule for Michigan, go to <http://hazmat.dot.gov/training/training.htm#classes>.

4.4.11 Michigan Requirements

Michigan's Motor Carrier Safety Act, Public Act 181 of 1963, as amended, adopted the Federal Hazardous Materials Regulations into state law. Aside from these regulations, there are some additional requirements that have been implemented by the state to further regulate the transportation of materials.

Permits and Registration

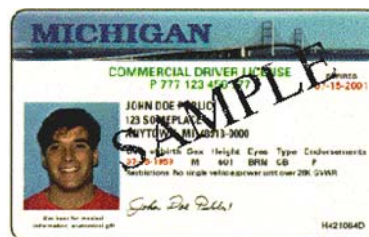
The Explosives Act of 1970, Public Act 202 of 1970, as amended established the permit program for explosives. These permits are required for any person who handles, stores, controls, uses, sells, purchases, transfers, transports, or otherwise disposes of explosives. The explosive permit program is administered by the DLEG, Office of the State Fire Marshal. Permits may be obtained at any State Police Post or County Sheriff Office.

The Hazardous Materials Transportation Act, Public Act 138 of 1998, regulates some waste transporters. Transporters of **hazardous waste-DEQ** in Michigan must register with the National Uniform Program and obtain a National Uniform Program Permit. In Michigan, this program is administered by the DEQ, WHMD. In addition, liquid industrial waste transportation is managed under a separate, parallel program called the Michigan Liquid Industrial Waste Uniform Program. If you transport liquid industrial waste, you must obtain a permit from and be registered with the Liquid Industrial Waste Uniform Program.

Upon issuance of the Uniform Credentials, a copy of the credentials must be carried in all vehicles transporting hazardous waste or liquid industrial waste in Michigan. The registration and permit application for both programs, as well as completion instructions and other information, can be downloaded off the Internet at www.michigan.gov/deqwaste (select "Hazardous and Liquid Industrial Waste Transporters"). You may also contact the WHMD, Hazardous Waste Program Section at (517) 373-9875.

License Requirements

In Michigan, you are required to obtain a commercial drivers license (CDL) to operate a commercial vehicle. In addition to this certification, special endorsements on your CDL are required to transport certain cargo. A Hazardous Materials Endorsement ("H") is necessary for any vehicle, regardless of gross vehicle weight rating (GVWR), that needs to be placarded under the



Federal Hazardous Materials Regulations.

A Tank Endorsement (“N”) is required for anyone operating a tank vehicle, according to the Michigan Vehicle Code, Public Act 300 of 1949, as amended.



For more information about Michigan hazardous material transportation requirements, contact the Michigan State Police, Motor Carrier Division, at (517) 336-6580 or visit their web site at www.michigan.gov/motorcarrier.

4.5 Storage of Polychlorinated Biphenyls (PCBs)

Use and storage areas that have Polychlorinated Biphenyls (PCBs) are subject to state and federal regulations. PCBs, and oils and other compounds or products containing 1% or more, by weight, of PCBs, are a polluting material under the state Part 5 rules (Spillage of Oil and Polluting Material) promulgated under Part 31 of Act 451 except if it is in active installations of oil containing electrical equipment such as transformers and capacitors. The DEQ Water Bureau oversees the state Part 5 rules. See Section 4.2 and Chapter 6 for more information.

EPA oversees the federal Toxic Substances Control Act (TSCA) when manufacturers have or handle regulated amounts of PCBs or if a device is leaking PCBs. Regulations apply to the manufacture, processing, distribution in commerce, marking, use, storage, and disposal of PCBs. There are different requirements based on the following PCB concentration levels:



- < 50 ppm (or ≤ 10 micrograms/100 cm² if contaminated surfaces)
- ≥ 50 ppm to < 500 ppm (or > 10 micrograms/100 cm² but < 100 micrograms/100 cm² if contaminated surfaces)
- ≥ 500 ppm (or ≥ 100 micrograms/100 cm² if contaminated surfaces)

Since these rules are too numerous to include in this publication, the following only summarizes how to identify PCBs and mentions a few requirements. Go to www.epa.gov/pcb for more information.



If you have regulated PCBs or have questions about PCBs, call EPA, Region 5 at 312-886-1334 or visit their web site at www.epa.gov/pcb.

4.5.1 Identifying PCBs

PCBs can be found in liquid, non-liquid, and a combination of liquid and non-liquid forms. Usually this chemical can be found in electrical equipment such as transformers, circuit breakers, switches, large capacitors, etc; or other equipment like air compressors; or may be a

byproduct of the manufacturing process. (See the definitions for “excluded manufacturing process” and “excluded PCB products” in the regulations to determine if any exclusions apply to your PCB waste.) PCBs may be found in dielectric fluids solvents, oils, hydraulic fluids or other heat transfer fluids, paints or coatings, sludges, slurries, and other chemical substances.

PCBs were marketed under various trade names. These include:

- Abestol
- Aroclor
- Askarel
- Chlophen
- Chlorextol
- DK
- EEC-18
- Fenclor
- Inerteen
- Kennechlor
- No-Flamol
- Phenoclor
- Pyralene
- Pyranol
- Saf-T-Kuhl
- Solvol

Additional information on how to identify PCBs is on the Internet at www.epa.gov/toxteam/pcbaid.

You can do any of the following to determine if you have regulated PCB concentrations:

- Look at the equipment label or nameplate for the words “No PCBs” or “PCBs” or any of the PCB trade names. If the nameplate is not readable, you may want to check with the equipment manufacturer for documentation as to the PCB concentration.
- Review service records or other documentation that indicates the PCB concentration of all fluids used since the article was first manufactured. You may need to check with your utility company to see if they have any records regarding the PCB concentration.
- Have the equipment tested.

If you do not have documentation or have not had tests conducted that identify the PCB level, you may use the following assumptions regarding PCB concentrations for use or storage for reuse. You will need to know the actual concentration at the time of disposal.

- Transformers and capacitors with less than 3 pounds of fluids, circuit breakers, reclosers, oil-filled cable, and rectifiers can be assumed to contain less than 50 ppm.

If you don't know how much dielectric fluid is present in the capacitor, the TSCA regulations provides the following assumptions:

- ✓ If the capacitor total volume is less than 100 cubic inches, assume it has less than three (3) pounds of dielectric fluid.
- ✓ If the capacitor total volume is more than 200 cubic inches, assume it has more than three (3) pounds of dielectric fluid.
- ✓ If the capacitor volume is between 100 and 200 cubic inches, and if the total weight is less than nine (9) pounds, assume it has less than three (3) pounds of dielectric fluid.
- Mineral oil-filled electrical equipment manufactured before July 2, 1979, contains ≥ 50 ppm to < 500 ppm. If the date of manufacture is unknown, assume it is PCB-contaminated.

- Transformers manufactured before July 2, 1979, that contain 3 pounds or more of fluid other than mineral oil contain ≥ 500 ppm. If the date of manufacture is unknown, assume it is a PCB-transformer.
- Capacitors manufactured before July 2, 1979, contain ≥ 500 ppm. Assume any capacitors manufactured after that date are non-PCB. If the date of manufacture is unknown, assume it contains ≥ 500 ppm.
- For any electrical equipment manufactured after July 2, 1979, assume it is non-PCB.

You must label specific items with the applicable mark that identifies them as containing PCBs. See 40 CFR Part 761, Subpart C regarding these requirements.

4.5.2 General Record Keeping and Reporting Requirements

As of February 5, 1990, owners or operators of facilities other than commercial PCB storage and disposal facilities that use or store the following PCB items must maintain annual records (manifests, certificates of disposal, and inspection and cleanup records) and prepare an annual document log if they have or do any of the following:

- Use or store at any one time at least 45 kilograms (99.4 pounds) of PCBs contained in PCB containers.
- Have one or more PCB transformers.
- Have 50 or more PCB large high- or low-voltage capacitors.

The log must be prepared by July 1 and must include specific information for bulk PCB, PCB articles, PCB containers, and PCB article containers for the previous calendar year (January through December). All these records must be kept at least three years after the facility ceases use or storage of the PCBs.

Keep a copy of all manifests used to ship PCB wastes to storage or disposal facilities (with the transporter's signature) until you receive signed copies back from the storage or disposal facility. You should receive this copy within 30 days of delivery of the PCB waste. Keep the copy signed by the receiving facility for at least three years from the date of shipment, unless it is part of the annual records discussed above. Use the manifest required by the state where the storage or disposal facility is located. See 40 CFR 761, Subpart K for more details and Section 2.4.9.f for codes used on Michigan manifests.

4.5.3 Notification Requirements

Not all generators need to notify EPA that they handle regulated PCBs, but all transporters and commercial storage and disposal companies do. A generator with a regulated PCB storage area as per 40 CFR Part 761.65(b) must notify EPA. A generator without a regulated PCB storage area that disposes waste PCBs within 30 days does not have to notify. A generator that keeps PCBs longer than 30 days must notify. EPA has two notification forms on the Internet—a **"Notification of PCB Activity"** ([Form 7710-53](#)) and **"PCB Transformer Registration"** ([Form 7720-12](#)).

To notify, complete and submit the “**Notification of PCB Activity Form**” (**EPA Form 7710-53**) if one has not already been sent to EPA or if your PCB activities have changed since it was last submitted. A generator will then obtain an identification number from EPA if they don’t already have one. If the generator already has an EPA number assigned under the hazardous waste program (see Chapter 2), EPA will confirm the use of this number under the TSCA program. If companies do not have an EPA number assigned under another program, EPA will issue a number. Do NOT use the “**Michigan Site Identification Form**” (**EQP 5150**) to request an EPA number for handling PCBs.

If a facility has PCB Transformer, it must fill out the “**PCB Transformer Registration**” (**Form 7720-12**). Both of these forms are found at the EPA web site www.epa.gov/pcb.

4.5.4 Storing PCB Articles

Different regulations apply to storing PCBs for reuse and storing PCB waste prior to disposal. PCB articles such as capacitors, transformers, electric motors, pumps, and other manufactured items can be stored in nonpermitted areas for reuse by the owner or facility operator, under specific conditions. Articles can be stored no more than five years after being removed from use or five years after August 28, 1998, whichever is later. If necessary to store longer, you must request an extension period from EPA or place the article in an area that meets specific design requirements or has a RCRA permit. Articles may be stored for use indefinitely if kept in an area that meets specific design requirements, such as having a roof, walls, and diking, or has a RCRA permit for managing hazardous waste. Discuss the specific storage design requirements with EPA. Call the WHMD, Hazardous Waste Program, Permit Unit at (517) 373-9875 to discuss RCRA permit requirements.

- Date the article was removed from service or August 28, 1998, if removal date is unknown.
- Projected location and future use of the article.
- Date of scheduled repair or servicing, if applicable.

You must also meet all the use requirements in 40 CFR **761.30**. For example, combustible materials such as paints, solvents, plastics, paper, wood, etc.) must be stored at least 16.4 feet away from PCB transformers. There are also requirements to have markings or signs that state PCBs are in the area.

Use areas and indoor storage areas for PCB polluting materials must be designed, constructed, maintained, and operated to prevent releases of polluting materials through sewers, drains, or to a public sewer system or to surface water or groundwater. If the PCB material is stored outdoors and is in liquid form, there are secondary containment requirements under Part 31 of Act 451 administrative rule R 324.2005 if the facility meets those regulatory threshold planning quantities.

PCB wastes can also be sent to an approved storage facility with a manifest before being disposed of. EPA has a list of these facilities on the Internet. Be sure to allow enough time to transport the PCB waste from the storage facility to the disposal company, and have the waste disposed of within the allowable one year time frame.

4.5.5 PCB Disposal

Disposal of PCB waste is regulated by both EPA under TSCA and the WHMD under Part 115, Part 121, and Part 147 of Act 451. Any regulated PCB waste under TSCA must be disposed of within one year from the date it was determined to be a waste, unless EPA granted an extension.

If the facility is not required to have an EPA-PCB identification number, you must obtain a Site Identification Number from the Waste and Hazardous Materials Division for the shipment of liquid industrial waste if you don't already have one. See Section 2.4.4.

Regulated PCBs must be manifested and disposed of at an EPA approved facility. EPA has a list of **PCB disposal facilities** on the Internet. In addition to the federal information required to be listed on manifests, PCB shipments must include the following additional information as required by Part 147 of Act 451 administrative rule R 299.3316(2):

- Physical state (e.g. solid or liquid)
- Composition (e.g. soil, debris, capacitors, oil, etc.)
- Concentration in the material
- Quantity (Although there is no specific unit of measure that must be used for PCB manifests, many facilities use kilograms because other PCB records or documents require kilograms to be used.)

If it is liquid waste, use the waste number of 026L for listing PCB liquid waste on a “**Uniform Hazardous Waste Manifest**”. If PCB waste is being shipped on a consolidated manifest, the waste number 026LC would be listed. See Section 2.4.5 for more manifesting information.

You should receive a “**Certificate of Disposal**” from the disposal facility within 30 days of the disposal completion date, unless a different time frame is identified in a contractual agreement between the generator and disposal facility. (See the regulations regarding the disposal of PCB bulk product waste and its complete definition.) Bulk product waste includes some waste derived from manufactured products that are in a non-liquid state and have PCB concentrations greater than or equal to 50 ppm; debris from building demolition; and other manmade structures that are PCB manufactured, coated, or serviced with PCBs.

See Section 2.4.9.f for a summary of requirements for small capacitors and ballasts in fluorescent light fixtures. See Section 6.4.3.d regarding information about PCB soil cleanup criteria.

WHERE TO GO FOR HELP

SUBJECT: Secondary containment of flammable and combustible liquids-Act 207

CONTACT: DEQ, WHMD, Storage Tank Unit
(517) 335-7211
www.michigan.gov/deqland (select "Storage Tanks" then "Aboveground Storage Tanks")

SUBJECT: Secondary containment of flammable and combustible liquids-MIOSHA

CONTACT: MIOSHA, Consultation Education & Training Division
(517) 322-1809
www.michigan.gov/miosha

PUBLICATIONS: Onsite Consultation Abatement Method Advice For: Flammable & Combustible Liquids (OSC-113)

SUBJECT: Secondary containment of hazardous waste (DEQ)

CONTACT: DEQ, [Waste and Hazardous Materials Division, District Office](#)
See Appendix B for phone numbers
www.michigan.gov/deqwaste

PUBLICATIONS: The Guide to Understanding Secondary Containment Requirements in Michigan

SUBJECT: Secondary containment for polluting materials (DEQ)

CONTACT: DEQ, [Water Bureau, District Office](#)
See Appendix B for phone numbers
www.michigan.gov/deqwater (select "Emergency Response for Releases to Water")

PUBLICATIONS: 1. [Pollution Incident Prevention Plan \(PIPP\) and Part 5 Rules and Information Packet](#)
2. [Visual Inspection \(EPA Fact Sheet\)](#)

SUBJECT: Storage Tank (ASTs and USTs) Regulations

CONTACT: DEQ, Waste and Hazardous Materials Division, Storage Tank Unit
(517) 335-7211
www.michigan.gov/deqland (select "Storage Tanks")

PUBLICATIONS:

Informational Charts:

1. Part 213 Leaking Underground Storage Tank Liability Flow Chart
2. Owner's Responsibility - Life of an Underground Storage Tank
3. Owner's Responsibility - Closure of an UST

Forms:

1. Notice of Proposed Installation of Underground Storage Tanks (EQP 3820)
2. Application for Installation of Aboveground Storage Tanks (EQP 3859)
3. Application for Installation of Liquefied Petroleum Gas Facilities (EQP 3861)
4. Application for Installation of Compressed Natural Gas Fueling Facilities (EQP 3860)
5. Registration for Underground Storage Tanks (EQP 3821)
6. Release Report (EQP 3826)
7. Intent of Removal, Closure, or Change-In-Service of USTs (EQP 3824)
8. UST System Site Assessment Report and Closure or Change-In-Service Registration Form (EQP 3881)
9. Change of Information Form Aboveground Storage Tanks Only (EQP 3858)
10. Underground Storage Tank Corrosion Protection Upgrade (EQP 3827)
11. LUST Initial Assessment Report (EQP 3841)
12. LUST Final Assessment Report (EQP 3842)
13. LUST Closure Report (EQP 3843)
14. Free Product Fax Transmittal (EQP 3800)
15. Notice of Migration of Contamination (EQP 4482)
16. Notice Regarding Discarded or Abandoned Containers (EQP 4476)
17. Notice to Impacted Parties of Corrective Action (EQP 3852)

Directory:

1. Permanent Qualified Underground Storage Tank Consultant (QC) List

Informational Brochures:

1. The Aboveground Storage Tank Program - An Overview
2. Michigan - Straight Talk on Tanks - Leak Detection Methods for Petroleum USTs and Piping
3. Michigan Dollars and Sense - Financial Responsibility Requirements for Michigan USTs
4. Verification of Soil Remediation
5. Causes of UST Leaks and Recommendations
6. Operating and Maintaining Underground Storage Tank Systems in Michigan
7. Tips for Underground Storage Tank Owners and Operators

STU Informational Memoranda:

1. Test Methodology for Site Assessments (IM-3)
2. Upgraded Underground Storage Tank Systems (IM-5)
3. Enforcement of Financial Responsibility (IM-6)
4. Corrosion Protection (IM-9)
5. Site Assessment at Closure or Change-In-Service After a Leaking Underground Storage Tank Closure (IM-10)

6. Monthly Monitoring Requirements for Release Detection (IM-11)
7. Storage of Compressed Natural Gas for Vehicle Fueling (IM-12)
8. Storage of Liquefied Petroleum Gases (IM-14)
9. Storage of Flammable and Combustible Liquids in AST Systems (IM-15)
10. Reporting Releases (IM-18)
11. Fire Protected ASTs and Distance to Property Lines and Buildings (IM-19)
12. Repairs to Cathodically Protected Underground Storage Tanks (IM-20)
13. Ten-Year Inspection of Lined Underground Storage Tank Systems (IM-21)

STU Operational Memoranda:

1. Alternate Methods of Secondary Containment for AST Systems (15)
2. Manual Tank Gauging as the Sole Method of Release Detection for Tanks with a Nominal Capacity of 550 Gallons or Less (16)
3. Criteria for the Installation of Belowground, Partly Belowground, or Mounded Liquefied Petroleum Gas Storage Containers (17)
4. Cathodic Protection Testing Criteria (18)

SUBJECT: Risk Based Corrective Action (RBCA)

CONTACT: American Society for Testing and Materials (ASTM)
(610) 832-9585
www.astm.org

PUBLICATIONS: Standard Guide for RBCA Applied at Petroleum Release Sites (E-1739-95)

SUBJECT: National Fire Protection Association (NFPA) Publications

CONTACT: National Fire Protection Association (NFPA)
(800) 344-3555
www.nfpa.org/codesonline

PUBLICATIONS:

1. Flammable and Combustible Liquids Code (NFPA 30 [2000 edition])
2. Automotive and Marine Service Station Code (NFPA 30A [2000 edition])
3. Standard for the Installation of Oil-Burning Equipment (NFPA 31 [2001 edition])
4. Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines (NFPA 37 [1998 edition])
5. Compressed Natural Gas (CNG) Vehicular Fuel Systems Code (NFPA 52 [1992 edition])
6. Liquefied Petroleum Gases Code (NFPA 58 [1998 edition])
7. Recommended Practice for Handling of Leakage of Flammable and Combustible Liquids (NFPA 329 [1987 edition])

SUBJECT: PCB storage

CONTACT: EPA Region 5
(312) 886-1334 or (800) 621-8431
www.epa.gov/pcb

PUBLICATIONS: 1. Notification of PCB Activity (Form 7710-53)
2. PCB Transformer Registration (Form 7720-12)

SUBJECT: Transportation of hazardous material-USDOT

CONTACT: Michigan State Police, Motor Carrier Division, Hazardous Materials Section
(517) 336-6580
www.michigan.gov/motorcarrier (select "Hazardous Materials")

SUBJECT: Transportation of hazardous material-USDOT

CONTACT: U.S. Department of Transportation
(800) 467-4922
hazmat.dot.gov

PUBLICATIONS: 1. Hazardous Materials Registration Program
2. How to Comply with Federal Hazmat Regulations
3. Do You Offer or Transport Hazardous Materials in Commerce?
4. What Hazardous Materials Regulations Apply to Materials of Trade?
5. An Overview of the Federal Hazardous Materials Transportation Law
6. Hazardous Materials Registration Statement (DOT F 5800.2)
7. Endorsement for Motor Carrier Policies of Insurance for Public Liability
Under Sections 29 and 30 of the Motor Carrier Act of 1980 (MCS-90)

TRAINING: U.S. Department of Transportation, Pipeline and Hazardous Materials
Safety Administration, Hazardous Materials Transportation Seminars and
Workshops
(202) 366-4900
<http://hazmat.dot.gov/training/training.htm#classes>

APPENDIX 4-A: SUMMARY OF SECONDARY CONTAINMENT REGULATIONS

The material that you store at your facility may be regulated by more than one agency and, therefore, listed in more than one row of this table. Due to limited space, not all of the requirements are explained. If you have questions on how materials are regulated, go to the chapter of the guidebook that is referenced under the "Regulation References" column. The bolded words that appear in the table are defined in Appendix B, "Definitions of Regulated Materials." The bullets in the individual columns do not correspond with bulleted information in the other columns of that row. The bullets are only used as an indicator for another point.

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Flammable and Combustible Liquids-MIOSHA	Varies with container type and class of material and whether material is stored indoors or outside. Limits how much material can be kept in storage cabinets.	<ul style="list-style-type: none"> • Storage room size varies with amount stored and fire protection rating (see MIOSHA document "OSC-113" and MIOSHA General Industry Safety Standards – Part 75). • At least 6" outdoor curb height. • At least 4" sill height or sunken floor for inside storage room. 	MIOSHA General Industry Safety Standards – Part 75, Flammable and Combustible Liquids	Department of Labor and Economic Growth, General Industry Safety and Health Division Consultation, Education & Training Division (517) 322-1809

¹MIOSHA – Michigan Occupational Safety and Health Administration

APPENDIX 4-A (continued)				
Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Flammable and Combustible Liquids-Act 207 Hazardous Materials-Act 207	<u>Aboveground Storage</u> <ul style="list-style-type: none"> • AST² 1,100 gallons or larger capacity. • Storage capacity of greater than 660 gallons of combustible liquids. • Any size container holding flammable liquids requires means of preventing flow into adjacent building area. • Any container less than 660 gallons capacity, if secondary containment is determined to be necessary by authorities. • Loading/unloading areas 	<ul style="list-style-type: none"> • Volume varies with amount stored and fire protection level; indoor/outdoor restriction; distance requirements between tanks, buildings, and property lines; aisle width between containers; etc. • Tanks must be in an area capable of containing 100% volume of the largest tank, plus the volume occupied by other tanks in the same area measured from the height of the dike wall. • At least 4" sill height or sunken floor for inside storage room or use of open-grated trench. • At least 6" curb height for outside storage area or sloped away from building. • Capacity to hold release and water from fire protection system to prevent release from reaching surface water, ground water, and subsurface soils. • Storage cabinet may be required for containers. 	<ul style="list-style-type: none"> • Michigan Fire Prevention Code, Public Act 207 of 1941 • FL/CL Rules R 29.5101 – R 29.5516 and adopted NFPA Standards <p>(see Section 4.3.2)</p>	DEQ, WHMD Storage Tank Unit (517) 335-7211 www.michigan.gov/deq (select "Land" then "Storage Tanks")

² AST – Aboveground Storage Tank

APPENDIX 4-A (continued)				
Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
<ul style="list-style-type: none"> • Hazardous Substance-CERCLA • Petroleum products (oil, gasoline, diesel fuel) • A substance listed in Section 112 of part A of title I of the clean air act, chapter 360, 84 Stat. 1685, 42 U.S.C. 7412 	<p><u>Underground Storage</u></p> <p>Regulated underground storage tank located in an exclusion zone or secondary containment zone.</p>	<ul style="list-style-type: none"> • Requires double-walled tanks or integral secondary containment tanks. 	<ul style="list-style-type: none"> • Part 211 (Underground Storage Tanks) of Public Act 451 of 1994 • UST Rules R 29.2101 – 29.2172 • FL/CL Rules R 29.5101 – R 29.5516 • 40 CFR 302.4 • Clean Air Act Section 112 <p>(see Section 4.1)</p>	<p>DEQ, Waste and Hazardous Materials Division, Storage Tank Unit</p> <p>(517) 335-7211</p> <p>www.michigan.gov/deq (select “Land” then “Storage Tanks”)</p>

APPENDIX 4-A (continued)				
Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Hazardous Waste-DEQ and EPA	<ul style="list-style-type: none"> • SQGs³ accumulating more than 2,200 lbs. of liquid hazardous waste. • LQGs⁴ accumulating any amount of hazardous waste. • SQGs or LQGs accumulating any waste with codes F020, F021, F022, F023, F026, and F027. • Anyone accumulating more than 2.2 lbs. of acute or severely toxic waste. • Generators with regulated waste tanks. • Conditionally Exempt SQGs are not required to have secondary containment unless they accumulate greater than 2,200 lbs., but they must manage the waste so there is no release into the environment, sewers, or drains. • There are specific requirements for treatment, storage, and disposal facilities; and transporters. • If in regulated storage tanks and has flashpoint below 200 degrees Fahrenheit, also meet Flammable and Combustible Liquids-Act 207 requirements 	<p>Capacity must be able to contain 100% of the largest container or 10% of the volume of all the containers in the system, whichever is larger, of liquid hazardous waste or those identified "F" code wastes plus any precipitation that gets in the accumulation area.</p> <p>NOTE: Spill pallets do not provide adequate squirt protection and are not acceptable for liquid hazardous waste containment.</p> <p>NOTE: Even if secondary containment is not required, it is recommended for all hazardous waste accumulation areas.</p>	<ul style="list-style-type: none"> • Part 111 (Hazardous Waste) of Public Act 451 of 1994. • R 299.9101 - 299.11107 • Federal Resource and Conservation Act (RCRA) • 40 CFR 260-279 <p>NOTE: If you handle hazardous waste, you will also need to meet emergency notification and planning requirements.</p> <p>(see Section 2.3 and Chapter 4)</p>	<p>DEQ, Waste and Hazardous Materials Division District Office www.michigan.gov/deqwhmd</p> <p>U.S. Environmental Protection Agency www.epa.gov</p>

³SQGs – Small Quantity Generators

⁴LQGs – Large Quantity Generators

APPENDIX 4-A (continued)

Regulated Substance	Regulated Storage Volumes	Required Containment Volumes	Regulations References	Agency with Regulatory Responsibility
Universal waste	<ul style="list-style-type: none"> Contain if waste or package is leaking, spilled, or damaged 	Place damaged package into another container or replace container	<ul style="list-style-type: none"> Hazardous waste rule R 299.9228 40 CFR 273 	Waste and Hazardous Materials Division District Office www.michigan.gov/deqwhmd
Oil-EPA , if any discharge can reach navigable water	<ul style="list-style-type: none"> If total storage capacity is more than 1,320 gallons (count containers 55 gal and larger). If underground storage capacity is more than 42,000 gallons. See 40 CFR 112 for exemptions. 	<ul style="list-style-type: none"> 100% of the largest single container plus sufficient freeboard to allow precipitation. Constructed to prevent release from escaping containment system before cleanup occurs. 	<ul style="list-style-type: none"> The Clean Water Act (CWA) 40 CFR 112 <p>NOTE: If your storage capacity is regulated under these federal regulations, a Spill Prevention, Control, and Countermeasures (SPCC) plan is required (see Section 6.2).</p>	U.S. Environmental Protection Agency Oil Program (312) 353-8200 www.epa.gov/oilspill/
<ul style="list-style-type: none"> Salt Polluting Materials listed in R324.2009 	<ul style="list-style-type: none"> Salt <ul style="list-style-type: none"> Solid form is more than 5 tons. Liquid form is more than 1,000 gallons. Listed polluting materials <ul style="list-style-type: none"> Outdoor use and storage areas 440 pounds. Indoor use and storage areas 2,200 pounds. Includes mixtures of above materials if their concentration is 1% or more by weight based on the MSDS information. Sites where DEQ determines necessary to protect surface water and groundwater. 	<p>Capacity for LIQUID polluting materials stored OUTDOORS must be able to contain not less than 10% of total volume of the tanks or containers, or 100% of the largest container within the containment structure, whichever volume is higher.</p> <p>Storage of solid materials must be contained to prevent releases through drains, sewers, etc into wastewater treatment plants, surface water or groundwater</p> <p>NOTE: If subject to SPCC, meet federal oil containment requirements.</p>	<ul style="list-style-type: none"> Part 31 (Water Resource Protection) of Public Act 451 of 1994 R 324.2001-R324.2009 <p>NOTE: If you have chemicals or salt stored in these amounts, a <i>Pollution Incident Prevention Plan (PIPP)</i> is required (see Section 6.2).</p>	DEQ, Water Bureau District Office www.michigan.gov/deqwb